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ABSTRACT

The possible advantages and disadvantages of using local or national educational achievement norms as standards for classroom performance are weighed against the more common situation wherein students are involved in face-to-face competition with their classroom peers. This introductory discussion concludes that the motivational value of "average scores" as goals may be inversely related to: (1) the discrepancy between these scores and participants' abilities; and (2) the dissimilarity between those subjects used in establishing norms and those for whom those norms are used as criteria for performance. The experiment reported herein tries to control for these relationships as it examines the effects of using high and low norms as standards for 8 classes of 5th graders on a 10-day vocabulary task, where norms were said to have been established by similar 5th grade classes. Results show the use of norms to be ineffective in influencing performance. Further, the speculation is supported that social relevance and relative difficulty are 2 major factors which do influence the effectiveness of academic goals. (TL)

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U.S. DEPARTMENT OF
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SUMMARY

This study, conducted with 279 fifth graders, examined the effects of high norms (HN) and low norms (LN) used as goals in a vocabulary learning task. Ss in the LN condition had significantly higher retention scores; performance and interest were not significantly different. Ss whose ability level was closest to the given norm expressed greatest interest in the task. Correlations between IQ, performance, and interest were higher in the HN condition.

INTRODUCTION

The use of local, regional, or national norms is common in educational evaluation and decision-making activities. For teachers and administrators norms can serve as guides for specifying expectations and as standards for improvement (Thorndike, 1971).

Although students may express little interest in national or regional norms, their concern with being "average," "above average," or "below average" is evidenced in such remarks as, "What is a passing score?" "Does C mean I'm doing as well as most of the kids in the class?" "Did you get a high or low mark?" It might be said that a student who is grade conscious is norm-conscious--at least with respect to his immediate classmates.

The use of peer established norms as standards can be perceived as a form of competition; for there is a comparison between two scores and an attempt to meet or surpass a stated level of performance. The competitive or comparison element in the use of most norms (e.g., regional, national), however, tends to be less explicit than that encountered in a well-defined competitive situation. The subjects who establish large-group norms are seldom personal acquaintances, while in most competitive situations members have definite expectations concerning the relative abilities of participants.

With the use of a norm, the goal score is known prior to performance, whereas in competition the criterion for success or failure is usually not determined until after performance when the high scorer has been identified. This may seem to suggest that goal specificity is greater in a norm condition than it is in a competitive situation, but such a conclusion must be qualified. It is true that a goal score based on norms can be specified in advance of performance, yet the relationship between that goal and an individual's ability is often uncertain. If the norm has been established by unknown individuals, a student may be doubtful as to whether he can easily surpass it or will have great difficulty achieving it. Students in face-to-face competition tend to be more certain about the probability of success because of their knowledge of their classmates' abilities.

Because of the remoteness of the goal and of the "competitors" the use of norms as standards is not likely

to have high motivational value. Social psychologists seem to offer support for this position. They suggest that standards established by a group for which an individual feels little affinity may not be perceived as applicable or relevant to him and thus may have little or no effect on his behavior (McDavid, 1966; Cartwright and Zander, 1953; Sherif & Sherif, 1964).

One might expect this attitude to be more pronounced when the norms or standards are excessively high or low relative to the ability of the individual assumed to be competing against them. Thus, the motivational value of using an "average score" as a goal may be inversely related to 1) the discrepancy between the goal score and the participant's ability and 2) the unfamiliarity between the Ss establishing the norm and those requested to use the norm as a criterion for performance.

This experiment was designed to examine the effects of using high norms and low norms as standards for 5th graders. The norms were said to have been established by similar 5th grade classes. A ten-day vocabulary task was conducted in the classroom and dependent measures of performance, retention, and interest were obtained. Since in both treatments, norms could be assumed to be inappropriate or irrelevant for the majority of the students, it was predicted that there would be no treatment main effect on performance or retention. However, the high norms could be perceived as realistic goals for high performers and the low norms could be perceived as realistic goals for low performers. Performance and retention for the extreme ability groups, therefore, should be higher when each group is exposed to norms relevant to their ability level.

It was predicted that interest would be higher for Ss given low norms, in which case success is presumably experienced with consistency, than for Ss given high norms, in which case failure is, at least for many, a reoccurring event (Locke, 1965, 1966). The relationships between interest, ability (i.e., IQ), and performance were expected to differ in the two treatments. Positive correlations between these variables were expected to be higher in the HN condition than in the LN condition. The rationale for this is based on the assumption that high norms will be perceived as appropriate goals for high ability Ss and in turn will increase interest, effort, and performance of such Ss. At the same time, low ability Ss will find these goals so unrealistic that interest and performance may actually be decreased. This will result in greater heterogeneity. In the LN condition, interest is relatively higher among Ss of low ability and their

performance may be positively affected. On the other hand, high ability Ss in this condition are likely to put forth relatively little effort. Greater homogeneity is thus expected in the LN condition and weaker correlations will result.

This study was conducted simultaneous with a more comprehensive experiment which examined the effects of within-class competition among students grouped homogeneously on ability. The competition study[1] consisted of a control and two treatments (i.e., a competitive game and competition with a candy reward). The task and dependent measures (i.e., performance, retention, and interest) were common to both studies; samples for the two experiments were randomly drawn from a single population. There was, however, a major methodological difference between the two investigations. For the competition experiment, a classroom mean was used as the unit of observation; while in the norm study the individual student was used as the experimental unit because of a shortage of classes. Although no statistical comparisons can be made between these studies, descriptive statistics will be used to contrast the treatments and to speculate on the social-relevance factor implied in goals set by peers (classroom competition) vs goals set by unknown students (i.e., norms).

METHOD

Subjects

Eight classes of 5th graders participated in this study. There were 137 Ss in the HN condition and 142 in the LN condition. The mean group IQ's were 100 and 103 respectively.

Materials

The materials used for this study were as follows:

Study Sheets--A 10-page booklet in which each page contained a list of 20 words suggested for home study.

Quiz Sheet--Ten parallel, multiple-choice tests each containing ten items. The key words for a given Quiz Sheet were taken from the study list distributed on the preceding day. (The development of these parallel quizzes is described by Clifford, 1971). The estimated KR-20 for the composite score based on 100 items was .96.

Answer Key--A list of correct responses for Quiz Sheets.

Opinion Sheet--A three-item instrument used to measure task interest. The instrument was administered following the completion of the final quiz.

Retention Test--A fifty-item instrument based on five randomly selected items from each of the ten quizzes. The estimated KR-20 based on 400 5th and 6th graders from similar school systems was .95.

Teacher's Manual--Sets of directions for the HN and LN conditions explaining how the task was to be conducted, scored, and recorded.

Norm Charts--An 8½" x 11" paper on which was graphed mean classroom scores for the ten daily quizzes. The charts used in the HN condition showed mean scores of 7, 8, and 9 while the charts used in the LN condition showed means of 2, 3, and 4. (Based on previous use of the vocabulary quizzes, 5th graders were expected to have class means of about 5.2 to 6.2).

Procedure

The eight classes were randomly assigned to one of the two conditions (i.e., High Norm and Low Norm). Classroom teachers administered all instruments. The basic procedure for the task was as follows: on each of ten consecutive days Ss in both treatments studied a 20-word Study List. The day after a list was assigned, Ss were given a multiple-choice quiz covering half of the words. Teachers scored the quizzes and gave feedback to the Ss before they began studying their next list. In addition, the class mean was computed and recorded on the norm chart. Thus, a visual comparison of the high or low norm (used as a treatment variable) and the actual class performance was provided daily.

After the final Word Building quiz, Ss completed the Opinion Sheet. Two weeks after the vocabulary task had been completed, Ss were given a retention test for which there was no forewarning. Thus, a blocked design with two treatments (i.e., HN and LN) and three dependent measures (i.e., performance, interest, and retention) was used for this experiment. IQ was obtained from school records and used to examine correlations with the dependent variables.

RESULTS

The results of the multivariate and univariate analysis for the three dependent measures are presented in Table 1. The multivariate test indicated there was a significant difference between the two treatments ($p < .04$). In accordance with prediction, no significant difference in performance was found. There was, however, an unexpected significance ($p < .05$) on the retention measure. Although the test on interest approached significance ($p < .07$), an examination of means reveals that the trend is not in the predicted direction; Ss given high norms expressed greater interest than Ss given low norms.

TABLE 1

Analysis of Variance

Multivariate analysis using Wilks Lambda Criterion		
HN vs LN	$F(3,235) = 2.72$	$p < .04$

Univariate Analyses	F(1,237)	MS	p
Performance	1.24	45435.48	< .27
Retention	3.83	541.98	< .05
Interest	3.23	7.70	< .07

Figure 1 shows the mean performance for the two norm groups as well as that of a control (C) and two competitive conditions (RC and GC) resulting from the related study conducted simultaneously. Performance is lower in the HN than in the LN condition, and lower in both these treatments than in the control and competitive conditions.

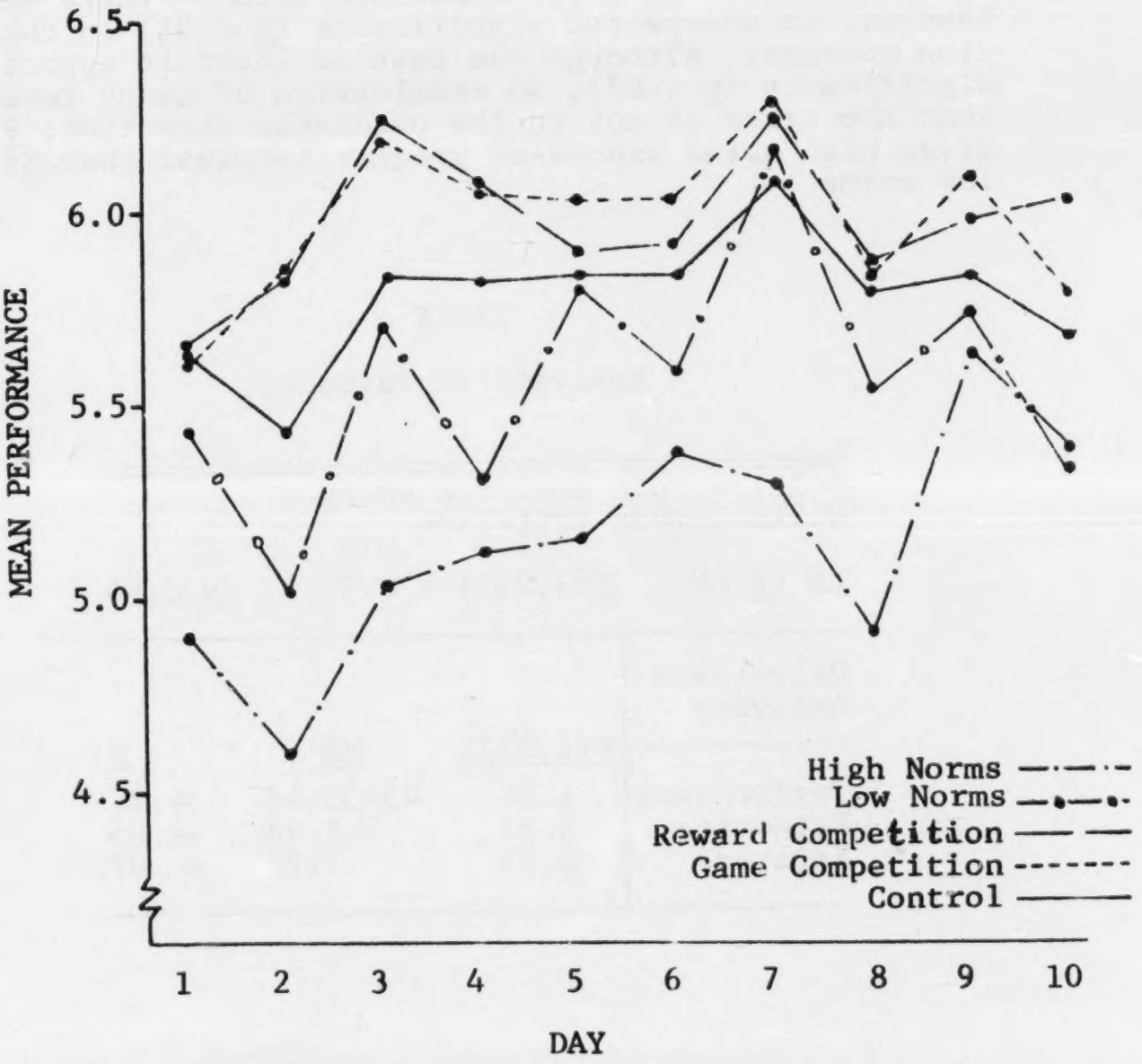

Figure 1 Mean daily performance for High Norms, Low Norms, and three conditions (i.e., Control, Reward Competition, Game Competition) comprising a related study.

Figure 2 shows the mean retention for the norm conditions. The discrepancy between LN and HN retention resembles the less marked trend found in performance.

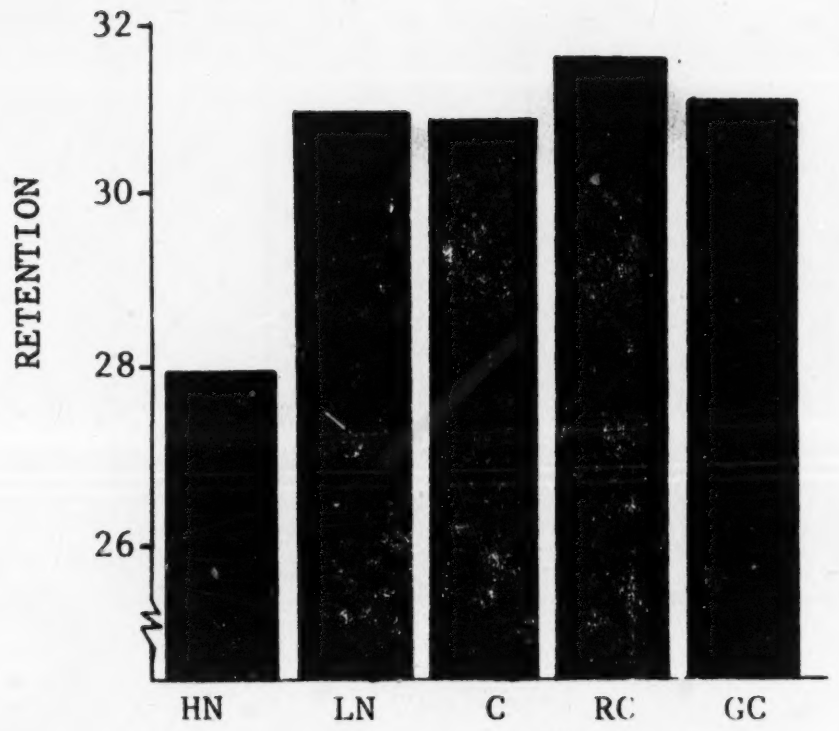

Figure 2 Mean retention for High Norms, Low Norms, and three conditions (i.e., Control, Reward Competition, Game Competition) comprising a related study.

In Figure 3, a comparison is made between the proportion of correct responses on the performance and retention measures in each of the five conditions. In all cases retention was relatively superior to original performance; the difference is most noticeable in the LN condition.

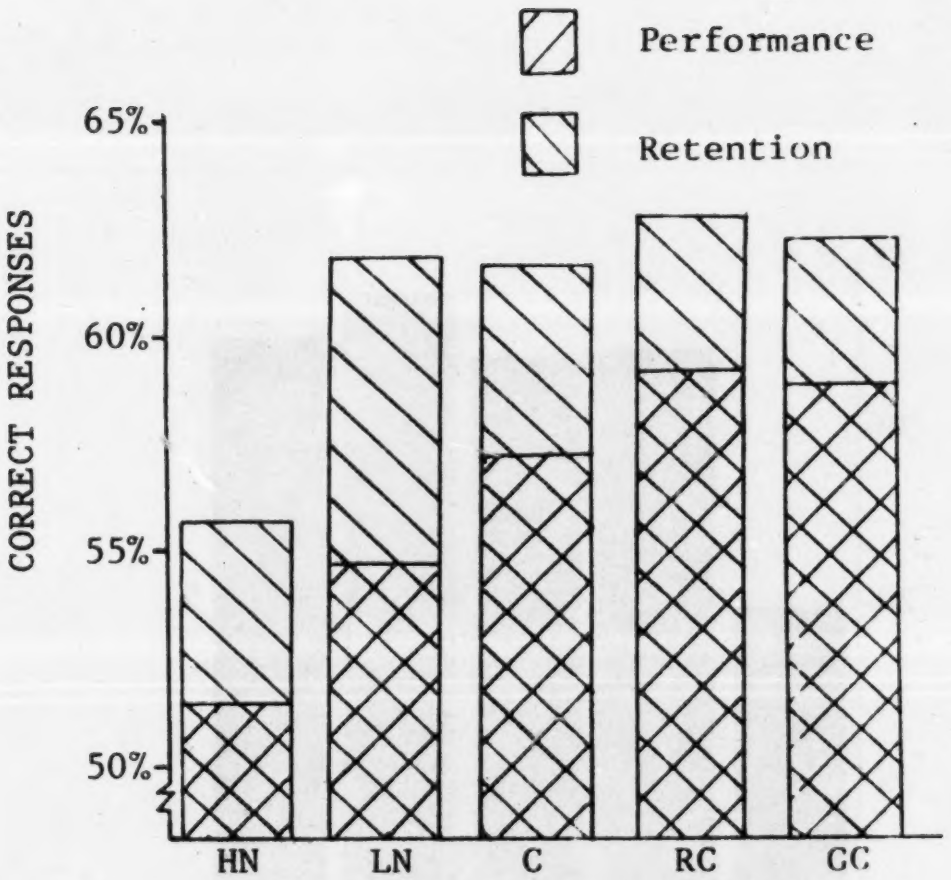

Figure 3 Mean performance and retention for High Norms, Low Norms, and three conditions (i.e., Control, Reward Competition, Game Competition) comprising a related study.

Figure 4 presents the results on the interest measure. HN Ss expressed greater interest in the task than did LN Ss. An examination of interest by ability (i.e., IQ) suggests that Ss with high IQs account for a relatively large part of this difference. Table 2 gives the mean interest scores for three levels of IQ. Individuals whose ability level can be assumed to coincide with the given norm (i.e., high IQ Ss in HN and low IQ Ss in LN) expressed greater interest in the treatment than Ss who, on the basis of ability, were assumed to be more distant from the specified norms.

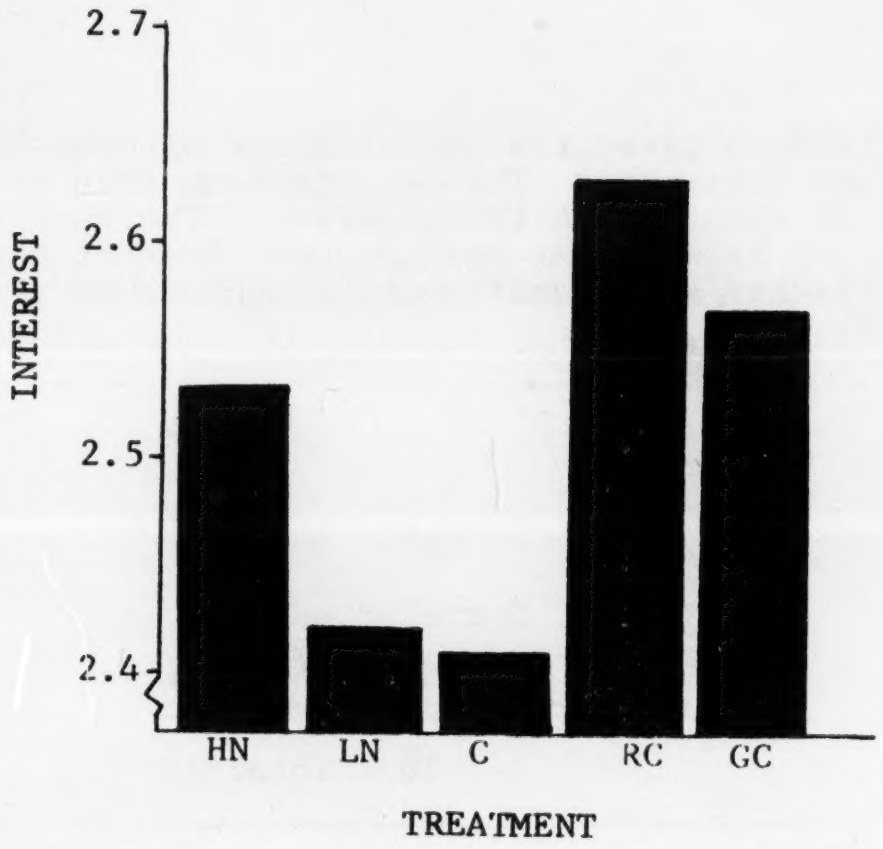

Figure 4 Mean interest for High Norms, Low Norms, and three conditions (i.e., Control, Reward Competition, Game Competition) comprising a related study.

TABLE 2

Interest

	High Norms	Low Norms
High IQ	8.69	7.18
(above 114)	0.75	1.22
Middle IQ	7.60	7.32
(93-114)	1.61	1.55
Low IQ	7.26	7.41
(below 93)	1.48	1.68

Mean over standard deviation

Table 3 gives the correlations between IQ, performance, and interest.[2] The correlations tend to be stronger in the HN than in the LN condition. The test for the difference between the performance-interest correlations using Fischer's z transformation approached significance ($p < .10$).

TABLE 3

Correlations

	IQ	Interest
Performance	.70 .60	.25 .04
Interest	.21 .04	

Top number is for HN; bottom number is for LN.

DISCUSSION

The use of norms as goals or standards for students appears to be relatively ineffective. A class without an expressed criteria, as in the control condition of the major study, is likely to perform as well or better than a class given either low or high norms as criteria. The results of this study and the comparison of these results with the competition study support the speculation that social-relevance and relative difficulty are two major factors which influence the effectiveness of academic goals.

The significant difference between HN and LN conditions on the retention measure is difficult to explain, particularly in view of the interest measure. Although interest was higher in the HN condition, retention was significantly higher in the LN condition. In both treatments the proportion of correct responses

on the retention measure was greater than the proportion of correct responses on the performance measure. This suggests that "learning from errors" or feedback may have been a significant factor. Based on this speculation, one might argue that Ss in the LN condition were less frustrated by failure (relative to the criteria, most Ss were successful), than Ss in the HN condition (relative to the criteria, most Ss failed) and thus the former were more receptive to learning from their mistakes. If the retention scores are assumed to be in part a function of learning from errors, it follows that Ss with low performance scores would account for more of the difference than Ss with high performance scores. Thus, the relative superiority of the retention scores over performance scores would be attributed primarily to low (and perhaps average) ability Ss rather than high ability Ss.

On the other hand, one might speculate that the difference in the interest measure is primarily a function of the high ability Ss. The high ability Ss in the HN condition and low ability Ss in the LN condition are the only Ss assumed to have goals which were appropriate and for which attainment was expected to provide satisfaction. However, high IQ Ss in the HN condition had the added satisfaction of being the few within their class to attain the criteria, while low IQ Ss in LN had no such distinction accompany their "success." In other words, the former had the two-fold victory of reaching their goal and surpassing peers.

This speculation implies that success (relative to a criterion) is a major function in learning from one's mistakes and that satisfaction or interest is a function of success as measured by an imposed standard (e.g., norm) as well as a self-selected goal (e.g., peer accomplishments).

The effects of educational failure have been discussed in great length (Sears, 1940; Lantz, 1945; Klein & Shoenfeld, 1941; Postman & Bruner, 1948) and numerous precautions have been taken to insure the student against failure (McDonald, 1965; Mouly, 1968). An assumption which seems to penetrate much of the educational literature is that the rate of learning is proportional to the ratio of success to failure (DiVesta & Thompson, 1970; Wilson, Robek, Michael, 1969). Relatively little attention has been given to examining the optimum probability of success for cognitive learning. Undoubtedly this will differ for individuals, tasks, and other situational factors. But there is reason to question whether a guaranteed diet of "success" is the best substitute for excessive frustration and failure. When there is no chance of failing, there is likely to be little satisfaction in succeeding and even less motivation for improving.

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FOOTNOTES

[1] This was the major study supported by an HEW Grant No. OEG-6-70-0043 (508).

[2] Unfortunately, only treatment and classroom identification was provided for Ss' retention scores, and thus no correlational information could be obtained.